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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,425	10/13/2005	Won-Kook Kim	YOM-0111	6242
23413	7590	10/16/2007		
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER SESE, JASON A	
			ART UNIT 4174	PAPER NUMBER
			MAIL DATE 10/16/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/507,425

Applicant(s)

KIM ET AL.

Examiner

Jason A. Sese

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1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2 May 2005; 3 Nov 2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 16-17 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishii et al. (WO 2001/48519). For the purposes of this office action, an English version in the same patent family will be used (U.S. Patent No. 6,726,995).
4. Regarding Claims 1 and 3, Ishii et al. disclose that the polarizing plate of the invention comprises a polarizing film, and a protective film comprised of cyclic olefin based resin, laminated on at least one side of the polarizing film (col. 1, line 66 - col. 2, line 3).
5. Regarding Claim 2, the applicant claims the polarizing plate according to claim 1, wherein the transparent film is of negative C-plate type.

Ishii et al. disclose in Table 1, that the retardation values in the thickness direction (R) are much higher than the retardation in the plane (R_0), meaning that the transparent film functions as a negative c-plate [Table 1, Example 1].

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6. **Regarding Claim 4**, Ishii et al. disclose that a pair of protection films were arranged on opposite sides of the polarizing film, and laminated (col. 9, lines 41-46).

7. **Regarding Claim 16**, the applicant claims the polarizing plate according to claim 1, wherein the transparent film is prepared by a solution casting which comprises the step of dissolving cyclic olefin-based addition polymer in a solvent and casting the solution into film.

Ishii et al. disclose in Example 1, that the film was produced by dissolving the cyclic olefin polymer in solvent, then cast (col. 8, lines 59-63).

8. **Regarding Claim 17**, the applicant claims the polarizing plate according to claim 1, wherein one or more kinds of surface treatments selected from the group consisting of corona discharge, glow discharge, ram treatment, acid treatment, alkali treatment, UV irradiation, and coating are conducted on the transparent film.

Ishii et al. disclose that the transparent film was subjected to a corona discharge treatment (col. 8, lines 63-66).

9. **Regarding Claim 27**, the applicant claims a liquid crystal display comprising the polarizing plate described in claim 1.

Ishii et al. disclose that the invention relates to a polarizing plate used in liquid crystal displays (col. 1, lines 5-7).

10. **Claims 1, 3-4, 6-9, and 13-15** rejected under 35 U.S.C. 102(b) as being anticipated by Oshima et al. (U.S. Pub. No. 2003/0119961).

11. **Regarding Claims 1 and 3-4**, Oshima et al. explain that the cyclic olefin addition copolymer of the invention relates to surface protective films [0003], and later discusses that surface protective films are typically provided on both sides of polarizing films [0025].

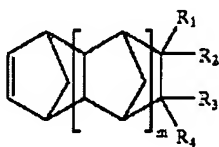
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12. Regarding Claim 5, the applicant claims the polarizing plate according to claim 1, wherein the transparent film has retardation value (R_{th}) of 60 to 1000 nm, when the thickness of the transparent film is set to 30 to 200 μm .

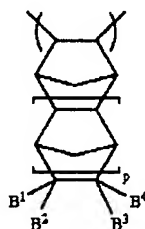
Using the disclosure of Oshima et al., it would have been inherent to the composition of the film, that the retardation value would fall into the range specified by the applicant.

13. Regarding Claim 6, the applicant claims the polarizing plate according to claim 1, wherein the cyclic olefin-based addition polymer is

- i) a homopolymer of the compound represented by the following Chemical Formula 1; or
- ii) a copolymer of two or more kinds of the compounds represented by the following Chemical Formula 1:



Oshima et al. disclose an addition copolymer comprising the identical structure [0040].



14. Regarding Claim 7, the applicant claims the polarizing plate according to claim 6, wherein the non-hydrocarbonaceous polar group of the Chemical Formula 1 is selected from a specific group.

See treatment of claim 6 above. Oshima et al disclose several non-hydrocarbonaceous polar groups that overlap those claimed by the applicant.

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15. Regarding Claims 8-9, the applicant claims the polarizing plate according to claim 1, wherein the cyclic olefin-based addition polymer comprises non-polar functional group, or wherein the cyclic olefin-based addition polymer comprises polar functional group.

See treatment of claim 6 above. Several examples of non-polar and polar functional groups are provided.

16. Regarding Claim 13, the applicant claims the polarizing plate according to claim 1, wherein the cyclic olefin-based addition polymer is prepared by a method comprising addition polymerizing norbornene-based monomers in the presence of Group 10 transition metal catalyst.

Oshima et al. disclose that the polymerization catalyst comprises Group 10 transition metals Ni and Pd [0056].

17. Regarding Claim 14, the applicant claims the polarizing plate according to claim 1, wherein the cyclic olefin-based addition polymer is prepared by a method which comprise contacting norbornene-based monomers comprising polar functional group with a catalyst component of a catalyst system comprising:

- i) a catalyst component of Group 10 transition metal compound;
- ii) a cocatalyst component of an organic compound that comprises Group 15 element and has noncovalent electron pair capable of functioning as an electron donor; and
- iii) a cocatalyst component of a salt comprising Group 13 element capable of offering an anion that can be weakly coordinated to the transition metal to effect addition polymerization.

Oshima et al. disclose a multicomponent catalyst to produce addition polymerization, in which describe components that correspond to those claimed by the applicant.

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- i) palladium bis(acetylacetonate) [0198-0199]
- ii) $\text{Ni}[\text{PhC}(\text{O})\text{CHPh}_2] (\text{Ph}) (\text{PPh}_3)$ [0202]
- iii) N,N-dimethylanilium tetrakis(pentafluorophenyl) borate [0206]

18. Regarding Claim 15, the applicant claims the polarizing plate according to claim 1, wherein the polarizing plate comprises a transparent optical film prepared from cyclic olefin-based addition polymer comprising polar functional group of ester or acetyl group, which is prepared by a method comprising contacting norbornene-based monomers comprising a polar functional group of ester or acetyl group with a catalyst component of a catalyst system comprising:

- i) Group 10 transition metal compound;
- ii) a compound comprising a neutral Group 15 electron donor ligand having a cone angle of at least 160° ; and
- iii) a salt capable of offering an anion that can be weakly coordinated to the i) transition metal to effect addition polymerization.

See above treatment of Claim 14.

19. Regarding Claims 18-23, the applicant claims a unified polarizing plate comprising an optically anisotropic transparent film laminated on at least one side of a polarizing film, with specific properties.

Because the polarizing plate of the invention was described prior by Ishii et al., the properties described by the applicant would be inherent to the invention.

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Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (U.S. Pub. No. 2003/0119961).

22. Regarding Claim 10, the applicant claims the polarizing plate according to claim 1, wherein the cyclic olefin-based addition polymer is a homopolymer of norbornene-based monomers comprising polar functional group, or a copolymer of norbornene-based monomers comprising different polar functional groups.

Ishii et al. disclose a cyclic addition copolymer comprising different monomer groups, wherein the functional groups of each monomer may be chosen individually [0036-0040]. It would have been obvious to one of ordinary skill in the art choose identical or varying functional polar groups for each monomer.

23. Regarding Claim 11, the applicant claims the polarizing plate according to claim 1, wherein the cyclic olefin addition polymer is a copolymer of norbornene-based monomers comprising non-polar functional group and norbornene-based monomers comprising polar functional group.

See treatment for claim 10 above. It would have been obvious to one of ordinary skill in the art to choose both non-polar and polar functional groups to produce a copolymer.

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24. Regarding Claim 12, the applicant claims the polarizing plate according to claim 1, wherein the transparent film comprises a blend of one or more kinds of cyclic olefin-based addition polymers.

Considering that Ishii et al. disclose a wide variety of monomers with different functional groups, as shown in the treatment of claims 10-11, it would have been obvious to include more than one kind of cyclic olefin-based polymer to adjust desired properties.

25. Claims 24-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. (WO 2001/48519). For the purposes of this office action, an English version in the same patent family will be used (U.S. Patent No. 6,726,995).

26. Regarding Claim 24, the applicant claims:

- a) conducting addition polymerization of norbornene-based monomers to prepare a norbornene-based addition polymer;
- b) dissolving the norbornene-based addition polymer in a solvent to prepare a norbornene-based addition polymer solution;
- c) coating or casting the norbornene-based addition polymer solution on a hard surface and drying; and
- d) laminating the cast film on a polarizing film.

Ishii et al. disclose a process that involves:

- a) dissolving cyclic olefin (norbornene) resin in a solvent (col. 8, lines 59-62);
- b) fabrication by solution casting (col. 8, lines 62-63);
- c) laminating on polarizing film (col. 9, lines 41-46)

In this process, the only step missing from the process is the step of conducting addition polymerization of the cyclic-olefin resin. The applicant states that cyclic olefin

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copolymers are well known in the literature, so it would have been obvious to one of ordinary skill to use addition polymerization to produce the cyclic olefin polymer.

27. **Regarding Claim 25**, the applicant claims the method according to claim 24, wherein the lamination in the step d) is conducted after conducting surface treatment of the cast film selected from the group consisting of corona discharge, glow discharge, flame treatment, acid treatment, alkali treatment, UV irradiation and coating.

In the above process described in the treatment of claim 24, Ishii et al. disclose that the cyclic olefin film was subjected to corona discharge treatment after solution casting, and before lamination on the polarizing film (col. 8, lines 63-65).

28. **Regarding Claim 26**, the applicant claims the method for preparing a polarizing plate according to claim 24, wherein the polarizing plate comprises a protection layer placed on one side or both sides of the polarizing film.

Ishii et al. disclose, in the process described in the above treatment of claim 24, that the protection film was laminated on both sides of the polarizing film. In the invention of Ishii et al., the cyclic olefin film also serves as the protection film.

29. **Regarding Claim 28**, the applicant claims the liquid crystal display according to claim 27, wherein the liquid crystal display comprises liquid crystal cell mode, of which liquid crystal layer has refractive index satisfying $n_x = n_y < n_z$, when power of liquid crystal display device is ON or OFF (wherein n_x is refractive index of in-plane slow axis, n_y is refractive index of in-plane fast axis, and n_z is refractive index toward thickness direction).

As shown in the above treatment of Claim 27, Ishii et al. disclose a liquid crystal display comprising the polarizing plate of claim 1, but the particular type of liquid crystal display is not specified. Vertically aligned (VA) and twisted nematic (TN) liquid crystal type-displays exhibit a larger refractive index in the thickness (z) direction than the in-plane (x,y)

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direction in the ON or OFF mode. These types of displays are very common in the art, hence it would have been obvious to one of ordinary skill in the art to use these type of liquid crystal displays with the invention.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Arakawa (US 2001/0008920) discloses a norbornene based resin and difference plate.
- Okada et al. (US 2003/0063237) disclose a polarizer protection film.
- Kelly et al. (US 2003/0164920) disclose a polarizing plate.
- Otsoshi et al. (US 2004/0041968) disclose a retardation and polarizing plate.
- Kanamori et al. (US 2004/0106740) disclose a cyclic olefin film.
- Arakawa (US 6,812,983) discloses a retardation plate for polarizing light.
- Sekiguchi et al. (US 2004/0242823) disclose a norbornene resin-based optical film
- Johnson et al. (US 6,965,474) disclose a polyolefin optical film.
- Duz et al. (US 2006/0055855) disclose a polarizer with a built-in retarder.
- Ichihashi (2006/0061717) discloses a polarizing plate.
- Kashima et al. (US 2006/0105115) disclose a retardation film and polarizing film.
- Moriyama et al. (US 2006/0106193) disclose polyamide films in optical films.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason A. Sese whose telephone number is 571-270-3473. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason A. Sese
Examiner
Art Unit 4174



D. LAWRENCE TARAZANO
PRIMARY EXAMINER